



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/587,654

05/21/2007

Man Geun Lee

68284-234055

2835

26694

7590

10/05/2010

VENABLE LLP

P.O. BOX 34385

WASHINGTON, DC 20043-9998

EXAMINER

PIGGUSH, AARON C

ART UNIT

PAPER NUMBER

2858

MAIL DATE

DELIVERY MODE

10/05/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,654	<b>Applicant(s)</b> LEE, MAN GEUN	
	<b>Examiner</b> Aaron Piggush	<b>Art Unit</b> 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13 and 15-22 is/are rejected.
- 7) ☒ Claim(s) 10 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/15/07</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1 and 16 are objected to because of the following informalities: The claims are indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites "and arranged in series/parallel", but it is unclear if the meaning is "series and parallel" or "series or parallel". Claim 16 recites "one fold, two folds, three folds, four folds, etc", but it is unclear what is included with "etc." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 15, 16, and 18-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Bessa (US 2003/0096642) in view of Kawama (US 5,725,006).

With respect to claim 1, Bessa discloses a portable multi-voltage solar cell charger comprising: at least one solar cell plate holding a plurality of solar cells which are molded and arranged in series/parallel (plate 208 holds cells 102 in Fig. 2 and para 0029); a power control part supplying a load side with power generated from the solar cells after automatically perceiving a voltage required from the load side (abstract, para 0034-0036, and Fig. 14); and a

Art Unit: 2858

case holding the solar cell plate and the power control part, the case combining at least one portable electronic device with a charging device (Fig. 1-9 and portable device 101 in Fig. 2).

However, Bessa does not expressly disclose a film formed on the solar cell plate, the film having a reformed surface to reduce reflection of sunlight. Although, it should be noted that he does disclose that the plate is transparent (para 0029).

Kawama discloses a film formed on a solar cell plate, the film having a reformed surface (Fig. 20A and 21 and col 14 ln 38 to col 15 ln 10), in order to allow for greater absorption by reducing the amount of light reflected.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include a film with a reformed surface on the device of Bessa, as did Kawama, so that less light would be reflected away (greater absorption and efficiency).

With respect to claims 2 and 3, Bessa does not expressly disclose wherein the solar cells are molded by using a heat resistant polymer, EVA resin, wherein the film formed on the solar cell plate is polymer resin.

Kawama discloses the use of heat resistant polymer resin with the solar cells (col 3 ln 50-65 and col 4 ln 17-36), in order to allow for greater absorption by reducing the amount of light reflected.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include resin in the device of Bessa, as did Kawama, so that the device could have a lightweight, strong, heat resistant material used in both the formation and the overall structure.

With respect to claims 4-6, Bessa does not expressly disclose wherein the film formed on the solar cell plate is treated so that the surface is covered with small pyramid-shaped

Art Unit: 2858

prominences or small inverted pyramid-shaped prominences or wherein the film formed on the surface of the solar cell plate is treated so that the surface becomes rough as corroded.

Kawama discloses wherein the film formed on the solar cell plate is treated so that the surface is covered with small pyramid-shaped prominences and small inverted pyramid-shaped prominences and wherein the film formed on the surface of the solar cell plate is treated so that the surface becomes rough/corroded (Fig. 20A and 21 and col 14 ln 38 to col 15 ln 10), in order to allow for greater absorption by reducing the amount of light reflected.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include a film with a particular surface shape on the device of Bessa, as did Kawama, so that less light would be reflected away (greater absorption and efficiency).

With respect to claim 7, Bessa discloses wherein the power control part comprises a step-up switching regulator, a step-down switching regulator, and a control circuit (para 0032-0036).

With respect to claim 15, Bessa discloses the charger further comprising a support formed on the back of the case, the support erecting the solar cell plate so that the solar cell plate is directed to incoming light for charging, the support being formed into a tweezer type so that charging is performed during movement (106 in Fig. 1, 2, and 9).

With respect to claim 16, Bessa discloses wherein the case has a structure selected from the group of one fold, two folds, three folds, four folds, etc (Fig. 2 and abstract).

With respect to claim 18, Bessa discloses wherein a connecting member is formed on one end of the wire coupled with the portable solar cell charger, the connecting member being formed of a male screw type on the center of which a hole is formed (405 in Fig. 2 and 4 and para 0029).

Art Unit: 2858

With respect to claim 19, Bessa discloses wherein the connecting member of a male screw type is combined with one end of a second connecting part of a female screw type on the center of which a protrusion is formed (405 in Fig. 2 and 4 and para 0030).

With respect to claim 20, Bessa discloses wherein the other end of the second connecting part is formed so as to have a structure suitable for an electronic device to be charged (405 in Fig. 2 and 4 and para 0029 and 0030).

With respect to claim 21, Bessa discloses the charger further comprising a cover formed on the back of the portable solar cell charger, the cover enclosing a gutter member and being used as a support (201 in Fig. 2 and 8).

With respect to claim 22, Bessa discloses the charger further comprising a stopper formed on one end of the cover, the stopper being used to support and attach the solar cell charger to another object (Fig. 2, where it is clear that another phone 101 can be placed in the charger).

4. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bessa (US 2003/0096642) and Kawama (US 5,725,006), and further in view of Renyolds (US 2003/0094931).

With respect to claims 8 and 9, Bessa discloses wherein the step-up switching regulator and step-down switching regulator each comprises a switch, an inductor, and an electrolytic condenser (synchronous switch, inductor L1, and condenser C3); however, does not expressly disclose wherein the switch is an n-channel FET or a p-channel FET.

Art Unit: 2858

Renyolds discloses a DC-DC converter that uses an n-channel FET and a p-channel FET (46 and 48 in Fig. 1 and para 0008 and abstract), to give greater control over the distribution of power in the system.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include the use of an n-channel or p-channel FET in the device of Bessa, as did Renyolds, so that the device could gain greater control over the power distribution while also using reliable components.

5. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bessa (US 2003/0096642) and Kawama (US 5,725,006), and further in view of Chung (US 6,909,259).

With respect to claims 11-13, Bessa does not expressly disclose wherein the case comprises a gutter member on which a wire connected to an output terminal of the power control part is wound and stored, wherein the gutter member comprises a disc and is formed so as to be replaced, or wherein the charger further comprises a fixing socket.

Chung discloses a charger with a gutter member on which a wire connected to an output terminal is wound and stored, wherein the gutter member comprises a disc and is formed so as to be replaced, and wherein the charger further comprises a fixing socket (Fig. 2-4 and abstract), in order to provide a more compact and well organized storage system, while still retaining the benefit of having a long reaching cable.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include a gutter member for storing an output wire in the device of Bessa, as did Chung, so

Art Unit: 2858

that the charging device could take up less space while still allowing a long reach for device attachment (more convenient to user).

6. Claims 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bessa (US 2003/0096642) and Kawama (US 5,725,006), and further in view of Bauer (US 6,295,702).

With respect to claim 17, Bessa does not expressly disclose the charger further comprising wherein a holding member formed on one side of the inside of the case around the solar cell is made of a magnet.

Bauer discloses the use of a magnetic fastener (abstract and Fig. 2), in order to provide a more secure means for fastening two components together.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to include a magnet for the holding member in the device of Bessa, as did Bauer, so that the components of the device could have a secure but detachable means for staying together.

#### ***Allowable Subject Matter***

7. Claim 23 is allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claim 23 recites a method of charging an electronic device using a portable solar cell charger, comprising: perceiving a voltage required from a load side on a microprocessor by converting the voltage using an A/D converter; converting the perceived voltage into a corresponding voltage using a D/A converter and comparing the converted voltage with a voltage from a solar cell plate using a comparator; integrating a signal from the comparator and a



Art Unit: 2858

signal from a pulse generator using an AND gate and adjusting the voltage from the solar cell plate based on the integrated signal; and supplying a voltage from the solar cell plate into the load side according to the adjusted voltage.

The prior art of record does not disclose the above limitation, nor would it be obvious to modify the art in such a manner.

9. Claims 10 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 10 recites the portable multi-voltage solar cell charger as defined by claim 7, wherein the control circuit comprises: an A/D converter perceiving a voltage required from the load side and converting the perceived voltage into a digital value; a microprocessor determining the voltage required from the load side using the digital value; a D/A converter converting the voltage determined from the microprocessor into an analog value; a comparator comparing the analog value from the D/A converter with an output from the solar cell plate; and an AND gate integrating a signal from the comparator and a signal from a pulse generator and adjusting the output from the solar cell plate.

Claim 14 recites the portable multi-voltage solar cell charger as defined by claim 12, further comprising two copper plates formed at an interval of 90 degrees on the inside of the case which is in contact with the gutter member so that polarities are changed by rotating the gutter member with an angle of 90 degrees.

Art Unit: 2858

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Piggush whose telephone number is (571)272-5978. The examiner can normally be reached on Monday-Friday 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on 571-272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. P./

Examiner, Art Unit 2858

/Patrick J Assouad/

Supervisory Patent Examiner, Art Unit 2858